



# NOTE BOOK

K. Imanishi  
生態學

植生篇  
動物社會篇

1954

CHERRY. NOTE.



CHAPTER

# CONTENTS

PAGE

Kinji Imanishi

帝物生学讲义中卷

1934

京都府立高等学校











土壌に水分が下り、又水分が蒸発する。

Soil rich 土壌豊か

change of condition  
by development  
of vegetation

competition

第一 = 草が繁り出すと 受光量が少なくなる。通風が悪くなる。地表 = "decaying matter" が多くなる。蒸発量が少なくなる。林の中で、水分が不足。最初、裸地では、乾燥地より、高熱により、到底草が成長し得ない。競争が激しくなる。競争 = competition と云うこと。

行 <sup>shrub</sup> 木が太くなる。その影 = 土壌の下に。早く受光量が不足の最初。層が下へ草が育つようになる。次第 = ① 草が通す。更 = ② = 樹木が育つ。喬木が生え出す。その下層に草が育つ。受光量は樹の下、受光量が少なくなる。喬木で最初、中は、充分 = 受光量が少なくなる。林が茂るにつれて、草は、③ 漸く競争する。木が太くなる。④ 下層の草が死んで、⑤ 影が太くなる。⑥ 下層の草が生え、⑦ 上へ上へ、⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉜ ㉝ ㉞ ㉟ ㊱ ㊲ ㊳ ㊴ ㊵ ㊶ ㊷ ㊸ ㊹ ㊺ ㊻ ㊼ ㊽ ㊾ ㊿

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Succession

climax

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[illegible]





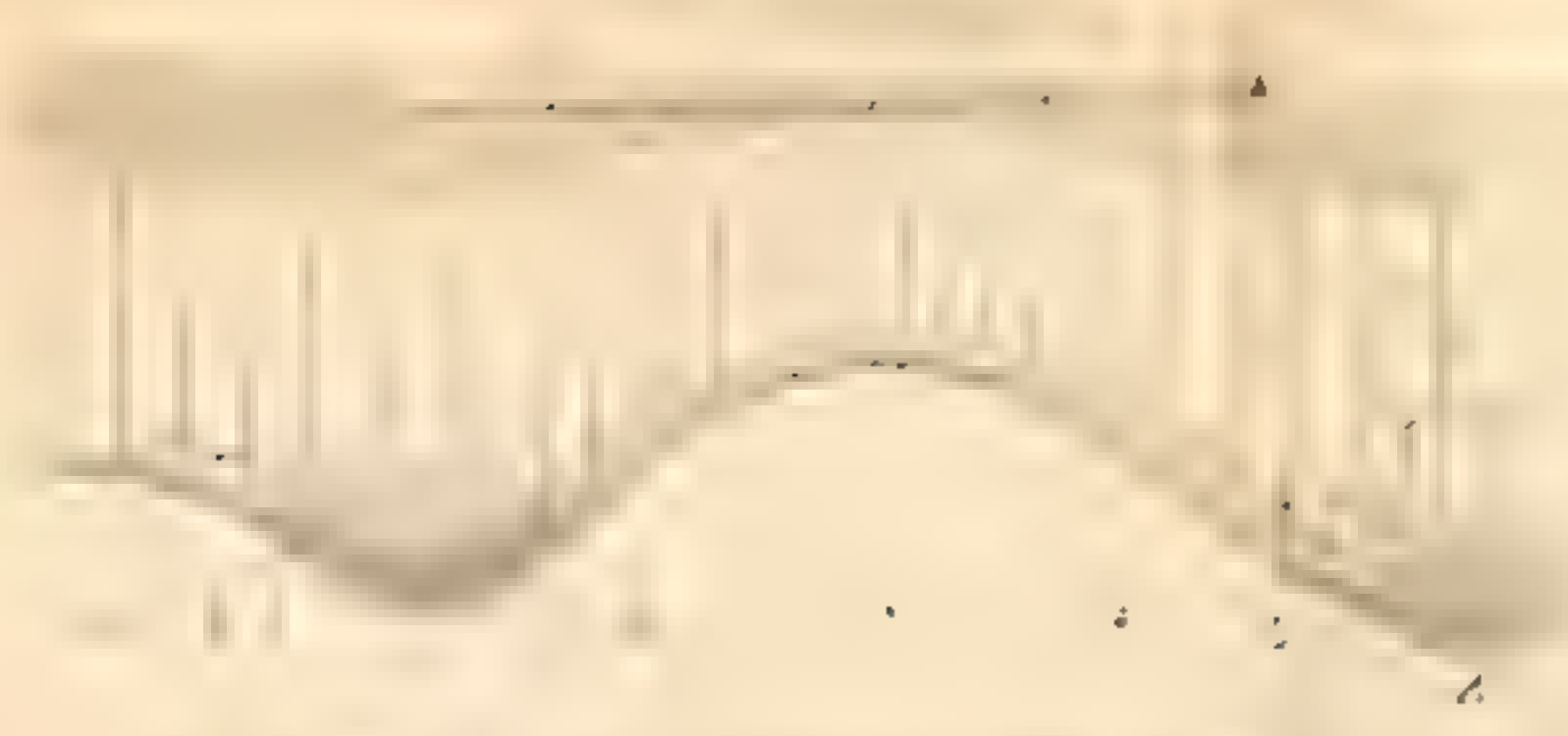
Der Übergang von einem Zustand zu einem anderen ist ein kontinuierlicher Prozess, der durch eine Reihe von Stufen gekennzeichnet ist.



Die Kurve zeigt den Verlauf eines Prozentsatzes über die Zeit.

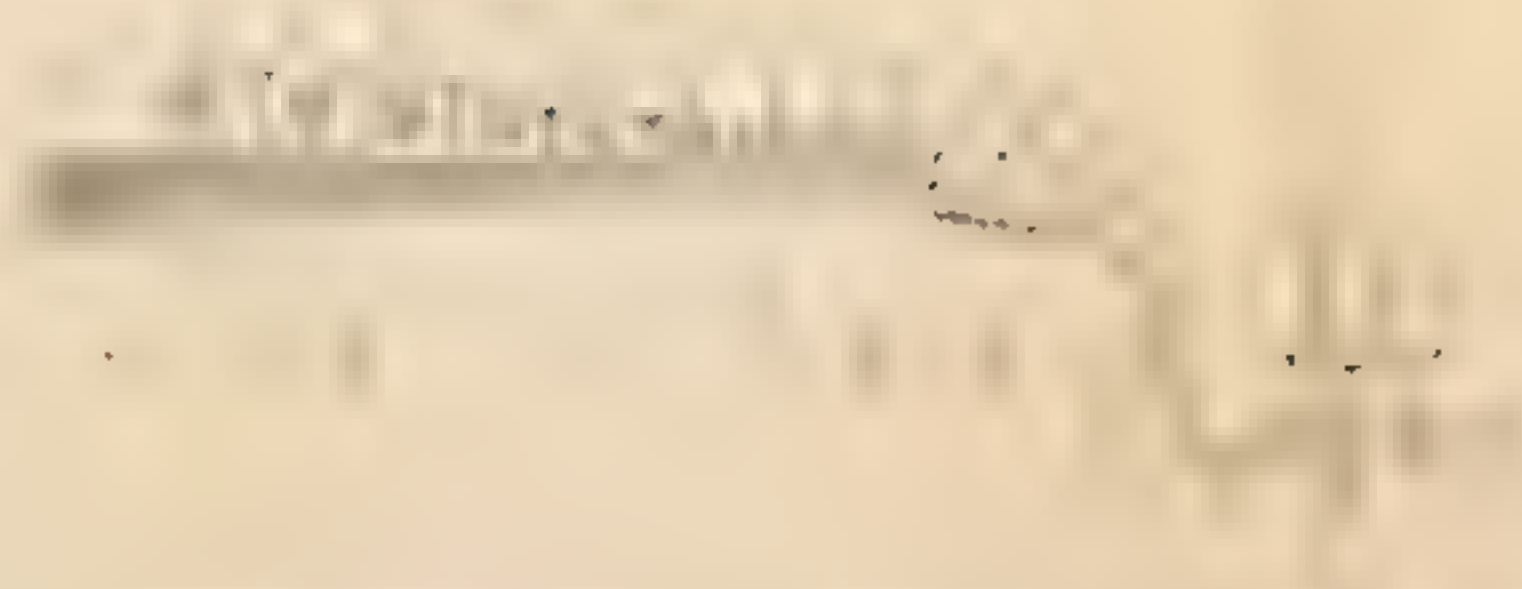
- a. ...
- b. ...
- c. ...
- d. ...
- e. ...
- f. ...

- a. ...
- b. ...
- c. ...
- d. ...
- e. ...
- f. ...



Die Kurve zeigt den Verlauf eines Prozentsatzes über die Zeit.

- a. ...
- b. ...
- c. ...
- d. ...
- e. ...
- f. ...



Die Kurve zeigt den Verlauf eines Prozentsatzes über die Zeit.

- a. ...
- b. ...
- c. ...
- d. ...
- e. ...
- f. ...



Proprietor \_\_\_\_\_

27542 Office \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_















トガウズ・ミル

1. 暖帯性沿岸地帯：— クマロフ、ツ、 トベラ 群系

- { クマ トベラ 群系
- { クマロフ、 ハマツ、 コウキウイ 群系
- { クマロフ、 ヤマツ、 スキ 群系
- { クマロフ、 アカマツ 群系
- { クマロフ、 ハマナ 群系

2. 温帯性沿岸地帯：— アカマツ、 ツ、 ハマナ 群系

- { アカマツ、 ハマナ、 コウキウイ 群系
- { アカマツ、 ヤマツ、 スキ 群系

3. 暖帯性内陸地帯：— シイ、 カシ、 モミ、 ツカ 群系

- { シイ、 カシ、 ヤマツ 群系
- { シイ、 カシ、 モミ、 ツカ 群系
- { カシ、 モミ、 コナラ 群系

4. 温帯性低山地帯：— モミ、 アカマツ、 イヌナ、 コナラ、 クリ、 クヌギ、 ヤナギ 群系

- { モミ、 イヌナ、 コナラ、 クリ、 ヤナギ 群系
- { アカマツ、 コナラ、 クリ 群系
- { コナラ、 クリ、 イヌナ、 ヤナギ 群系
- { ~~イヌナ、 ヤナギ、 クリ~~、 ツカ、 イヌナ、 モミ 群系

5. 温帯性中山地帯：— ナナ、 ミナナ、 シイ 群系

- { ミナナ、 シイ 群系
- { ナナ、 シイ 群系

\*カシ







Chap. 5. 事物社会, 结构

[illegible]

持リ物と 節物

Blütenbiologie

自然者，天則







Castor

'parasitism'

... browsing ... highest order ...  
(Castor) ...  
...  
...  
...  
host + parasite ...  
... outbreak ...  
spectabilis ...  
balance of nature ...  
herbivorous insect ...  
margin ...  
...  
...  
normal condition ...  
parasitism ...  
host, parasite ...











mammals 138

人體食性進化

[illegible]

higher animals = 67% R = primitive etc. + 3%

7207. 11. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 8

1. 10 84 - 10 85 1000. 10 14 - 10 15 1000 det. *Canis lupus* 2/1000 2/1000  
 2. 10 84 - 10 85 1000. 10 14 - 10 15 1000. *Canis lupus* 2/1000 2/1000.

• 20-27-07 hermitage, 152 2 flocks + 1600, 1000 army @ 11<sup>30</sup> 9

1947年7月1日 星期四 晴 温度：25℃ 湿度：75% 风速：1.5m/s 气压：1013hPa 降水：0mm 日照：4h 云量：10% 风向：东南 风力：2级 备注：无异常

ex-21 2nd 100%, 1st 100% mass action, 1st 100% 1st 100%

[illegible]

習 (3) 上 + 一 + 上 + 同 (習) : 習文 + 習字 = hunting ... 又習 (習)

1.  $10 \times 10 = 100$  " ~~mass production~~ ~~100~~

價値，又亦 = 主價，即，其結果 然，其 其世，其大，其小

[illegible]

§17 Parasite 植物社会=社会. herbivorous + 植物 = ecologically =



# 動物社会機構

東京帝国大学 大津南園實験所

動物 + 植物 - 食糧関係 - food relation - (balance of nature) -

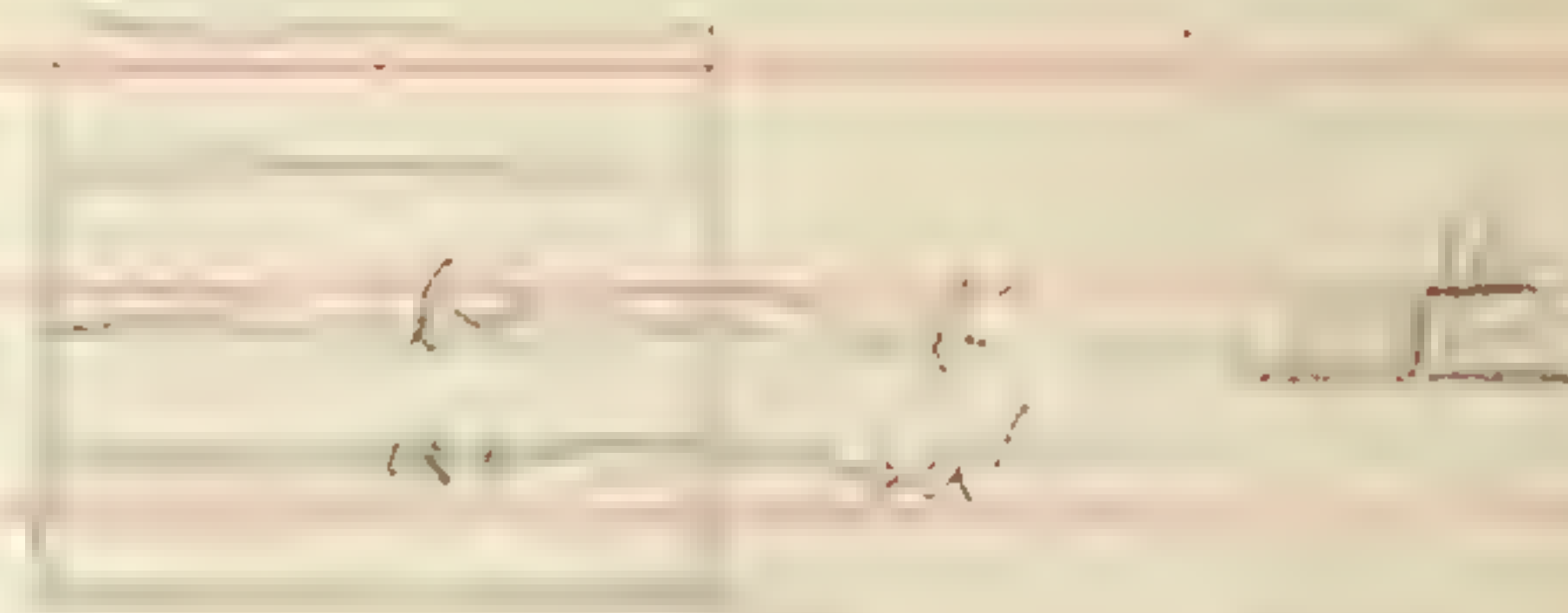
- feeding - 食餌 (摂食)

consumption, 消費

activity, 活動

reproduction, 繁殖

specimen



reproduction

growth



zootoparasite

~~John was dead in six months~~

Carnivore + parasite:

~~non-vascular plants~~ + ~~toxic~~ + ~~toxic~~ + ~~toxic~~ + ~~toxic~~ + ~~toxic~~

i. 2 + 6 + 1 = 9 parasites per host

→ 1st 43% (1st + 2nd + 3rd + 4th = 100% → 100% - 57% = 43%) → intra-carnivore hyperparasite

7. 12. 1964. 1110' K + 134' 2001507 41015070.

$\frac{1}{2} \ln \left( \frac{1 + \sqrt{1 - 4x}}{1 - \sqrt{1 - 4x}} \right) = \frac{1}{2} \ln \left( \frac{1 + \sqrt{1 - 4x}}{1 - \sqrt{1 - 4x}} \right)$  and  $\frac{1}{2} \ln \left( \frac{1 + \sqrt{1 - 4x}}{1 - \sqrt{1 - 4x}} \right) = \frac{1}{2} \ln \left( \frac{1 + \sqrt{1 - 4x}}{1 - \sqrt{1 - 4x}} \right)$

parasitic 779 herbivorous animal 870 carnivorous animal 871

*parasitic*;  $\mu = 0.74$ . 虫。植物体上，动物体表或体内生活，靠吸取寄主营养而生存。

parasitism of the 2nd. 2nd 1st 4th - herbivore + carnivore + 1st 2nd

an endoparasite of the 2nd instar, ~~the 1st instar~~ ~~the 1st instar~~ ~~the 1st instar~~

~~Hier ist die parasitische Form~~

host / spare energy = 27, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300, 2400, 2500, 2600, 2700, 2800, 2900, 3000, 3100, 3200, 3300, 3400, 3500, 3600, 3700, 3800, 3900, 4000, 4100, 4200, 4300, 4400, 4500, 4600, 4700, 4800, 4900, 5000, 5100, 5200, 5300, 5400, 5500, 5600, 5700, 5800, 5900, 6000, 6100, 6200, 6300, 6400, 6500, 6600, 6700, 6800, 6900, 7000, 7100, 7200, 7300, 7400, 7500, 7600, 7700, 7800, 7900, 8000, 8100, 8200, 8300, 8400, 8500, 8600, 8700, 8800, 8900, 9000, 9100, 9200, 9300, 9400, 9500, 9600, 9700, 9800, 9900, 10000, 10100, 10200, 10300, 10400, 10500, 10600, 10700, 10800, 10900, 11000, 11100, 11200, 11300, 11400, 11500, 11600, 11700, 11800, 11900, 12000, 12100, 12200, 12300, 12400, 12500, 12600, 12700, 12800, 12900, 13000, 13100, 13200, 13300, 13400, 13500, 13600, 13700, 13800, 13900, 14000, 14100, 14200, 14300, 14400, 14500, 14600, 14700, 14800, 14900, 15000, 15100, 15200, 15300, 15400, 15500, 15600, 15700, 15800, 15900, 16000, 16100, 16200, 16300, 16400, 16500, 16600, 16700, 16800, 16900, 17000, 17100, 17200, 17300, 17400, 17500, 17600, 17700, 17800, 17900, 18000, 18100, 18200, 18300, 18400, 18500, 18600, 18700, 18800, 18900, 19000, 19100, 19200, 19300, 19400, 19500, 19600, 19700, 19800, 19900, 20000, 20100, 20200, 20300, 20400, 20500, 20600, 20700, 20800, 20900, 21000, 21100, 21200, 21300, 21400, 21500, 21600, 21700, 21800, 21900, 22000, 22100, 22200, 22300, 22400, 22500, 22600, 22700, 22800, 22900, 23000, 23100, 23200, 23300, 23400, 23500, 23600, 23700, 23800, 23900, 24000, 24100, 24200, 24300, 24400, 24500, 24600, 24700, 24800, 24900, 25000, 25100, 25200, 25300, 25400, 25500, 25600, 25700, 25800, 25900, 26000, 26100, 26200, 26300, 26400, 26500, 26600, 26700, 26800, 26900, 27000, 27100, 27200, 27300, 27400, 27500, 27600, 27700, 27800, 27900, 28000, 28100, 28200, 28300, 28400, 28500, 28600, 28700, 28800, 28900, 29000, 29100, 29200, 29300, 29400, 29500, 29600, 29700, 29800, 29900, 30000, 30100, 30200, 30300, 30400, 30500, 30600, 30700, 30800, 30900, 31000, 31100, 31200, 31300, 31400, 31500, 31600, 31700, 31800, 31900, 32000, 32100, 32200, 32300, 32400, 32500, 32600, 32700, 32800, 32900, 33000, 33100, 33200, 33300, 33400, 33500, 33600, 33700, 33800, 33900, 34000, 34100, 34200, 34300, 34400, 34500, 34600, 34700, 34800, 34900, 35000, 35100, 35200, 35300, 35400, 35500, 35600, 35700, 35800, 35900, 36000, 36100, 36200, 36300, 36400, 36500, 36600, 36700, 36800, 36900, 37000, 37100, 37200, 37300, 37400, 37500, 37600, 37700, 37800, 37900, 38000, 38100, 38200, 38300, 38400, 38500, 38600, 38700, 38800, 38900, 39000, 39100, 39200, 39300, 39400, 39500, 39600, 39700, 39800, 39900, 40000, 40100, 40200, 40300, 40400, 40500, 40600, 40700, 40800, 40900, 41000, 41100, 41200, 41300, 41400, 41500, 41600, 41700, 41800, 41900, 42000, 42100, 42200, 42300, 42400, 42500, 42600, 42700, 42800, 42900, 43000, 43100, 43200, 43300, 43400, 43500, 43600, 43700, 43800, 43900, 44000, 44100, 44200, 44300, 44400, 44500, 44600, 44700, 44800, 44900, 45000, 45100, 45200, 45300, 45400, 45500, 45600, 45700, 45800, 45900, 46000, 46100, 46200, 46300, 46400, 46500, 46600, 46700, 46800, 46900, 47000, 47100, 47200, 47300, 47400, 47500, 47600, 47700, 47800, 47900, 48000, 48100, 48200, 48300, 48400, 48500, 48600, 48700, 48800, 48900, 49000, 49100, 49200, 49300, 49400, 49500, 49600, 49700, 49800, 49900, 50000, 50100, 50200, 50300, 50400, 50500, 50600, 50700, 50800, 50900, 51000, 51100, 51200, 51300, 51400, 51500, 51600, 51700, 51800, 51900, 52000, 52100, 52200, 52300, 52400, 52500, 52600, 52700, 52800, 52900, 53000, 53100, 53200, 53300, 53400, 53500, 53600, 53700, 53800, 53900, 54000, 54100, 54200, 54300, 54400, 54500, 54600, 54700, 54800, 54900, 55000, 55100, 55200, 55300, 55400, 55500, 55600, 55700, 55800, 55900, 56000, 56100, 56200, 56300, 56400, 56500, 56600, 56700, 56800, 56900, 57000, 57100, 57200, 57300, 57400, 57500, 57600, 57700, 57800, 57900, 58000, 58100, 58200, 58300, 58400, 58500, 58600, 58700, 58800, 58900, 59000, 59100, 59200, 59300, 59400, 59500, 59600, 59700, 59800, 59900, 60000, 60

ectoparasite = 体外寄生生物。如：疥癬，虱子等。

カ、*marini* carnivore + parasite, ~~肉食性~~, 食肉性の意味。(5) *marini*

~~para~~ para sí = 防衛 - 吸血の好手 + 足元、落胆等

37 1/2 22 1/2 1 1/2

Fig. 1. 3D-plot of the function  $\Phi(x, y, z)$  for  $\alpha = 0.5$ ,  $\beta = 0.5$ ,  $\gamma = 0.5$ ,  $\delta = 0.5$ ,  $\epsilon = 0.5$ ,  $\zeta = 0.5$ ,  $\eta = 0.5$ ,  $\theta = 0.5$ ,  $\iota = 0.5$ ,  $\kappa = 0.5$ ,  $\lambda = 0.5$ ,  $\mu = 0.5$ ,  $\nu = 0.5$ ,  $\xi = 0.5$ ,  $\omicron = 0.5$ ,  $\pi = 0.5$ ,  $\rho = 0.5$ ,  $\sigma = 0.5$ ,  $\tau = 0.5$ ,  $\upsilon = 0.5$ ,  $\phi = 0.5$ ,  $\chi = 0.5$ ,  $\psi = 0.5$ ,  $\omega = 0.5$ ,  $\eta = 0.5$ ,  $\theta = 0.5$ ,  $\iota = 0.5$ ,  $\kappa = 0.5$ ,  $\lambda = 0.5$ ,  $\mu = 0.5$ ,  $\nu = 0.5$ ,  $\xi = 0.5$ ,  $\omicron = 0.5$ ,  $\pi = 0.5$ ,  $\rho = 0.5$ ,  $\sigma = 0.5$ ,  $\tau = 0.5$ ,  $\upsilon = 0.5$ ,  $\phi = 0.5$ ,  $\chi = 0.5$ ,  $\psi = 0.5$ ,  $\omega = 0.5$ .

carnivorous eucaryotes, 107, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929,

7 有, 4 有. Big carniore (3 m 1. 4 p m) Lucany 12. 8. 2. 9. 7

parasite / ʃɑːrɪˈtaɪzəm / parasite ʃɑːrɪˈtaɪzəm

$\therefore \log_2 8 = 3$ ,  $\therefore \log_2 16 = 4$ .  $\therefore \log_2 32 = 5$ .

*[Handwritten note:]* "superfood-ordinance"

~~In parasile h[ic] n[on] d[icitur] e[ss]e p[ar]asile~~

Parasite or pathogen  $\rightarrow$  are often protozoa, parasite + zo means 59.

2 endoparasite / hyperparasitism 17. Hymenoptera / 007

$\frac{1}{2} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$  (1/4) (1/8) (1/16)

(1)  $\rightarrow$  infection by primary parasite reproduction

*Pimpla inquisitor* Sm. 2<sup>o</sup> secondary parasite for chalcids  
oil of turpentine. From Calif. August all.

*D. brachys* = *echeanus* St. f. 2 = 10/10, charact., *A. echeanus* available















2. 愛知大. 72 - 長崎大. 227 1971. p. 11 + 200.  
1972. 長崎大. 227. hypothetical + 21, 200.

|           | A. | B.      | C.    | D.    | E.    | F.    | G.    |
|-----------|----|---------|-------|-------|-------|-------|-------|
| 10000     |    | 10000   | 10000 | 10000 | 10000 | 10000 | 10000 |
| Community |    | 4000    | 100   | 2     | 2(4A) | 2(4B) | 2(4C) |
| 1         |    | 2000    | 50    | 1     | 1     | 1     | 1     |
| 10000     |    | 100     | 60    | 40    | 35    | 10    | 2     |
| Community |    | 1000000 | 300   | 40    | 25    | 10    | 2     |
| 1000000   |    | 1000000 | 2900  | 38    | 23    | 8     | 0     |
| 1000000   |    | 1000    | 1000  | 76    | 46    | 24    | 40    |
| 1000000   |    | 100     | 2     | -38   | -23   | 16    | -10   |

hermaphrodite, parasite, scavenger etc. 社会性动物 = 社会性动物  
 社会性动物 = 社会性动物, Colony, Family etc. 社会性动物 = 社会性动物  
 社会性动物 = 社会性动物 = 社会性动物 = 社会性动物 = 社会性动物

§<sub>A</sub> territory. 2nd, 3. A + a community i.e. 4. 菜 community

$A \rightarrow B \rightarrow C \rightarrow D$  a food chain

248果ト云フ= 38匹、Die 2匹、計40匹ト云フ。248 = 2, community

11. C is the area of the shaded region.  $\frac{2900}{100} = 29$  is the area of the shaded region.

1960. 2. 28 (in the community - 41), 2. 28 (in the community - 41)

[illegible][illegible][illegible]

$\frac{1}{n} \sum_{i=1}^n x_i = \bar{x}$

[illegible]

347 元・時 30 分、分書料 76 ×  $\frac{2}{152}$  =  $\frac{304}{152}$  元・時 76 分

community / 社区 / 共同体 A community / 范围 / 社区 / 共同体

18921 ~~18922~~ 218. 11 171. 01 387 1221 A community

~~= 2: A community~~

1912: Martin. A community of 720, 200 + 葉、木が四本並

「おれが」 32- 出た / 一ツが七が 標名ある心上云つた心。 →

area 3 指河

1601-1602 1603-1604 1605-1606 1607-1608 1609-1610 1611-1612 1613-1614 1615-1616 1617-1618 1619-1620 1621-1622 1623-1624 1625-1626 1627-1628 1629-1630 1631-1632 1633-1634 1635-1636 1637-1638 1639-1640 1641-1642 1643-1644 1645-1646 1647-1648 1649-1650 1651-1652 1653-1654 1655-1656 1657-1658 1659-1660 1661-1662 1663-1664 1665-1666 1667-1668 1669-1670 1671-1672 1673-1674 1675-1676 1677-1678 1679-1680 1681-1682 1683-1684 1685-1686 1687-1688 1689-1690 1691-1692 1693-1694 1695-1696 1697-1698 1699-1700 1701-1702 1703-1704 1705-1706 1707-1708 1709-1710 1711-1712 1713-1714 1715-1716 1717-1718 1719-1720 1721-1722 1723-1724 1725-1726 1727-1728 1729-1730 1731-1732 1733-1734 1735-1736 1737-1738 1739-1740 1741-1742 1743-1744 1745-1746 1747-1748 1749-1750 1751-1752 1753-1754 1755-1756 1757-1758 1759-1760 1761-1762 1763-1764 1765-1766 1767-1768 1769-1770 1771-1772 1773-1774 1775-1776 1777-1778 1779-1780 1781-1782 1783-1784 1785-1786 1787-1788 1789-1790 1791-1792 1793-1794 1795-1796 1797-1798 1799-1800 1801-1802 1803-1804 1805-1806 1807-1808 1809-1810 1811-1812 1813-1814 1815-1816 1817-1818 1819-1820 1821-1822 1823-1824 1825-1826 1827-1828 1829-1830 1831-1832 1833-1834 1835-1836 1837-1838 1839-1840 1841-1842 1843-1844 1845-1846 1847-1848 1849-1850 1851-1852 1853-1854 1855-1856 1857-1858 1859-1860 1861-1862 1863-1864 1865-1866 1867-1868 1869-1870 1871-1872 1873-1874 1875-1876 1877-1878 1879-1880 1881-1882 1883-1884 1885-1886 1887-1888 1889-1890 1891-1892 1893-1894 1895-1896 1897-1898 1899-1900 1901-1902 1903-1904 1905-1906 1907-1908 1909-1910 1911-1912 1913-1914 1915-1916 1917-1918 1919-1920 1921-1922 1923-1924 1925-1926 1927-1928 1929-1930 1931-1932 1933-1934 1935-1936 1937-1938 1939-1940 1941-1942 1943-1944 1945-1946 1947-1948 1949-1950 1951-1952 1953-1954 1955-1956 1957-1958 1959-1960 1961-1962 1963-1964 1965-1966 1967-1968 1969-1970 1971-1972 1973-1974 1975-1976 1977-1978 1979-1980 1981-1982 1983-1984 1985-1986 1987-1988 1989-1990 1991-1992 1993-1994 1995-1996 1997-1998 1999-2000 2001-2002 2003-2004 2005-2006 2007-2008 2009-2010 2011-2012 2013-2014 2015-2016 2017-2018 2019-2020 2021-2022 2023-2024 2025-2026 2027-2028 2029-2030 2031-2032 2033-2034 2035-2036 2037-2038 2039-2040 2041-2042 2043-2044 2045-2046 2047-2048 2049-2050 2051-2052 2053-2054 2055-2056 2057-2058 2059-2060 2061-2062 2063-2064 2065-2066 2067-2068 2069-2070 2071-2072 2073-2074 2075-2076 2077-2078 2079-2080 2081-2082 2083-2084 2085-2086 2087-2088 2089-2090 2091-2092 2093-2094 2095-2096 2097-2098 2099-2100 2101-2102 2103-2104 2105-2106 2107-2108 2109-2110 2111-2112 2113-2114 2115-2116 2117-2118 2119-2120 2121-2122 2123-2124 2125-2126 2127-2128 2129-2130 2131-2132 2133-2134 2135-2136 2137-2138 2139-2140 2141-2142 2143-2144 2145-2146 2147-2148 2149-2150 2151-2152 2153-2154 2155-2156 2157-2158 2159-2160 2161-2162 2163-2164 2165-2166 2167-2168 2169-2170 2171-2172 2173-2174 2175-2176 2177-2178 2179-2180 2181-2182 2183-2184 2185-2186 2187-2188 2189-2190 2191-2192 2193-2194 2195-2196 2197-2198 2199-2200 2201-2202 2203-2204 2205-2206 2207-2208 2209-2210 2211-2212 2213-2214 2215-2216 2217-2218 2219-2220 2221-2222 2223-2224 2225-2226 2227-2228 2229-2230 2231-2232 2233-2234 2235-2236 2237-2238 2239-2240 2241-2242 2243-2244 2245-2246 2247-2248 2249-2250 2251-2252 2253-2254 2255-2256 2257-2258 2259-2260 2261-2262 2263-2264 2265-2266 2267-2268 2269-2270 2271-2272 2273-2274 2275-2276 2277-2278 2279-2280 2281-2282 2283-2284 2285-2286 2287-2288 2289-2290 2291-2292 2293-2294 2295-2296 2297-2298 2299-2300 2301-2302 2303-2304 2305-2306 2307-2308 2309-2310 2311-2312 2313-2314 2315-2316 2317-2318 2319-2320 2321-2322 2323-2324 2325-2326 2327-2328 2329-2330 2331-2332 2333-2334 2335-2336 2337-2338 2339-2340 2341-2342 2343-2344 2345-2346 2347-2348 2349-2350 2351-2352 2353-2354 2355-2356 2357-2358 2359-2360 2361-2362 2363-2364 2365-2366 2367-2368 2369-2370 2371-2372 2373-2374 2375-2376 2377-2378 2379-2380 2381-2382 2383-2384 2385-2386 2387-2388 2389-2390 2391-2392 2393-2394 2395-2396 2397-2398 2399-2400 2401-2402 2403-2404 2405-2406 2407-2408 2409-2410 2411-2412 2413-2414 2415-2416 2417-2418 2419

25 25 13 25 13 25 13

[illegible]







of Pyramid + Pent.<sup>n</sup>.

|   |        |
|---|--------|
| G | ギバ     |
| F | ヘビ     |
| E | カヘル    |
| D | クモ     |
| C | テントウムシ |
| B | ブリマキ   |
| A | ノコギリ   |

territory as community, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851,

$$4A \times 4 \times 6 = 4E \times 6 = 6F = 1G$$

i.e.  $24A = 24E = 6F = 1G$

1. 1st terminal animal in territory. ~~1st~~ 1st animal in territory.  
2. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
3. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
4. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
5. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
6. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
7. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
8. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
9. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.  
10. 1st area ~~1st~~ 1st area in territory. ~~1st~~ 1st area in territory.

|   |         |    |
|---|---------|----|
| G | 2       | 2  |
| F | 50      | 12 |
| E | 600     | 1  |
| D | 7360    | 12 |
| C | 55200   | 12 |
| B | 3680000 | 12 |

トナ、12上ハ、~~hypothetical~~ hypothetical = treatment, 707  
実験ニハ、第1本 + 第1本 + 1875 4. 7 ~~11+75~~, 70 = 142.2"  
(1974) 第1本 + 1875 correlation coefficient, x.



Josephine K. ...

[illegible]

territory / 主權







[illegible]

animal community  
1 11/54p























[illegible]

15. 题 亚極盛相 subclimax 如何以植生狀態  
指示。實例舉之說明之。

問題 動物社会 = 動物個体数 / 消費  
最適密度 optimum density

18 黄巢 18 黄巢 11 村 痛字 Ictinus fallax  
无孔山 号 machaon  
子部 附. 2644  
子部 附. 2644



Methuen's monographs  
on biological subjects.

The ecology of animals  
by C. Elton.

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